WHAT IS CLAIMED IS:

1. A reproduced signal evaluation apparatus for evaluating a signal reproduced from a recording medium, comprising:

a binary data detecting means for decoding said signal reproduced from said recording medium by maximum likelihood decoding;

a SAM value computing means for computing a SAM value in real time based on a result of detection by said binary data detecting means, wherein SAM means Sequenced Amplitude Margin; and

a reproduced signal evaluation means for evaluating said reproduced signal based on said SAM value computed by said SAM value computing means.

2. A reproduced signal evaluation method for evaluating a signal reproduced from a recording medium, said method comprising:

a binary data detecting step for detecting binary data by decoding said signal reproduced from said recording medium by maximum likelihood decoding;

a SAM value computing step for computing a SAM value in real time based on a result of detection by said binary data detecting step, wherein SAM means Sequenced Amplitude Margin; and

a reproduced signal evaluation step for evaluating said reproduced signal based on said SAM value computed by said SAM value computing step.

3. A reproducing apparatus for reproducing a signal recorded on a recording medium and converting said signal into binary data, said reproducing apparatus comprising:

a reproducing means for reproducing a signal recorded on said recording medium;

a binary data detecting means for detecting binary data by

decoding said signal reproduced from said reproducing means by maximum likelihood decoding;

a SAM value computing means for computing a SAM value based on a result of detection from said binary data detecting means, wherein SAM means Sequenced Amplitude Margin;

a reproduced signal evaluation means for evaluating said reproduced signal based on said SAM value computed by said SAM value computing means; and

a reproduction controlling means for controlling said reproducing means based on a result of said evaluation by said reproduced signal evaluation means.

4.   The reproducing apparatus according to Claim 3, wherein:

said recording medium comprises an optical recording medium or an magneto-optical recording medium from which recorded data is reproduced by an optical means; and

quality of a reproduced signal, that is obtained when data recorded on said recording medium under a recording optical output power and reproduced under a different reproducing optical output power, is evaluated by said reproduced signal evaluation means using said SAM value computed by said SAM value computing means and, based on a result of said evaluation, an optimal reproducing optical output power is determined for reproducing data recorded on said recording medium.

5.   The reproducing apparatus according to Claim 4, wherein a value, obtained by multiplying a predetermined coefficient and a lowest reproducing optical output power among reproducing optical output powers having said SAM value equal or lower than a reference SAM value during said reproduction, is determined as said optimal reproducing optical output power.

54

6.   A reproduction method for reproducing a signal recorded on a recording medium and converting said reproduced signal into binary data, said reproduction method comprising

5   reproducing step for reproducing said signal recorded on said recording medium;

        binary data detecting step for detecting binary data by decoding a signal reproduced from said reproducing step by maximum likelihood decoding;

10   SAM value computing step for computing a SAM value based on a result of detection from said binary data detecting step, wherein SAM means Sequenced Amplitude Margin;

        reproduced signal evaluation step for evaluating said reproduced signal based on said SAM value computed by said SAM value computing step; and

        reproduction controlling step for controlling said reproducing step based on a result of said evaluation by said reproduced signal evaluation step.

20   7.   A recording apparatus for recording modulated data on a recording medium, said apparatus comprising:

        a recording means for modulating data and recording said data on said recording medium;

        a reproducing means for reproducing a signal recorded on said
25   recording medium;

        a binary data detecting means for detecting binary data by decoding said signal reproduced from said reproducing means by maximum likelihood decoding;

        a SAM value computing means for computing a SAM value based
30   on a result of detection from said binary data detecting means, wherein SAM means Sequenced Amplitude Margin;

a reproduced signal evaluation means for evaluating said reproduced signal based on said SAM value computed by said SAM value computing means; and

a recording controlling means for controlling said recording
5   means based on a result of said evaluation by said reproduced signal evaluation means.

8.   The recording apparatus according to Claim 7, wherein:

said recording medium comprises an optical recording medium or
10   an magneto-optical recording medium from which recorded data is reproduced by an optical means; and

quality of a reproduced signal, that is obtained when data recorded on said recording medium under a recording optical output power and reproduced under a different reproducing optical output
15   power, is evaluated by said reproduced signal evaluation means using said SAM value computed by said SAM value computing means and, based on a result of said evaluation, an optimal reproducing optical output power is determined for reproducing data recorded on said recording medium.
20

9.   The recording apparatus according to Claim 8, wherein a value, obtained by multiplying a predetermined coefficient and a lowest reproducing optical output power among reproducing optical output powers having said SAM value equal or lower than a reference SAM
25   value during said reproduction, is determined as said optimal reproducing optical output power.

10.   A recording method for recording modulated data on a recording medium, said method comprising:
30   a recording step for modulating data and recording said data on said recording medium;

56

a reproducing step for reproducing a signal recorded on said recording medium;

a binary data detecting step for detecting binary data by decoding said signal reproduced from said reproducing step by maximum likelihood decoding;

a SAM value computing step for computing a SAM value based on a result of detection from said binary data detecting step, wherein SAM means Sequenced Amplitude Margin;

a reproduced signal evaluation step for evaluating said reproduced signal based on said SAM value computed by said SAM value computing step; and

a recording controlling step for controlling said recording step based on a result of said evaluation by said reproduced signal evaluation step.

11.   A reproduced signal evaluation apparatus for evaluating a signal reproduced from a recording medium on which data modulated by a modulation code having a minimum run of one or more is stored, said reproduced signal evaluation apparatus comprising:

a binary data detecting means for detecting binary data after decoding, by applying maximum likelihood decoding, said signal reproduced from said recording medium on which data modulated by said modulation code having said minimum run of one or more is stored;

a SAM value computing means for computing a SAM value based on a detection result of said binary data detecting means, wherein SAM means Sequenced Amplitude Margin; and

a reproduced signal evaluation means for selecting from SAM values computed by said SAM computing means, said SAM values being within a predetermined range of values, and evaluating said reproduced signal by statistically processing said selected SAM values.

57

12. The reproduced signal evaluation apparatus according to Claim 11, wherein said reproduced signal evaluation means selects a SAM value among a plurality of said SAM values computed by said SAM computing means having a minimum SAM value for said ideally-reproduced signal or less, and computes, as said statistical process, an average value of a square of a difference between said minimum SAM value for said ideally-reproduced signal and said selected SAM value.

13. The reproduced signal evaluation apparatus according to Claim 11, further comprising a coefficient multiplying means for multiplying said SAM values inputted to said reproduced signal evaluation means by a coefficient, wherein

said reproduced signal evaluation means selects a SAM value among a plurality of said SAM values multiplied by said coefficient through said coefficient multiplying means having a minimum SAM value or less for an ideally-reproduced signal, and computes as said statistical process, an average value of a square of a difference between said minimum SAM value for said ideally-reproduced signal and said selected SAM value; and

said coefficient is controlled in order that a frequency of selection of said SAM values having said minimum SAM value for said ideally-reproduced signal or less equals a frequency of appearance of a minimum SAM value for said ideally reproduced signal.

14. A reproduced signal evaluation method for evaluating a signal reproduced from a recording medium on which data modulated by a modulation code having a minimum run of one or more is stored, said reproduced signal evaluation method comprising:

a binary data detecting step for detecting binary data after

58

decoding by applying maximum likelihood decoding, said signal reproduced from a recording medium on which said data modulated by said modulation code having said minimum run of one or more is stored;

5   a SAM value computing step for computing a SAM value based on a detection result of said binary data detecting step, wherein SAM means Sequenced Amplitude Margin; and

       a reproduced signal evaluation step for selecting, from SAM values computed by said SAM computing step, said SAM values being

10 within a predetermined range of values, and then evaluating said reproduced signal by a statistical process said selected SAM values.

15.   A reproducing apparatus for reproducing a signal from a recording medium on which data modulated by a modulation code

15 having a minimum run of one or more is stored, said reproducing apparatus comprising:

       a reproducing means for reproducing a signal from a recording medium on which data modulated by using said modulation code having said minimum run of one or more is stored;

20   a binary data detecting means for detecting binary data after decoding said reproduced signal reproduced from said recording medium by said reproducing means applying a maximum likelihood decoding;

       a SAM value computing means for computing a SAM value

25 based on a detection result of said binary data detecting means, wherein SAM means Sequenced Amplitude Margin;

       a reproduced signal evaluation means for selecting from SAM values computed by said SAM computing means, said SAM values being within a predetermined range of values, and evaluating said

30 reproduced signal by a applying a statistical process to said selected SAM values; and

a reproduction controlling means for controlling said reproducing means based on a result of said evaluation by said reproduced signal evaluation means.

5   16.   The reproducing apparatus according to Claim 15, wherein said reproduced signal evaluation means selects a SAM value among a plurality of said SAM values computed by said SAM computing means having a minimum SAM value for an ideally-reproduced signal or less, and computes, as said statistical process, an average value of a square

10   of a difference between said minimum SAM value for said ideally-reproduced signal and said selected SAM value.

17.   The reproducing apparatus according to Claim 15, further comprising a coefficient multiplying means for multiplying said SAM values inputted to said reproduced signal evaluation means by a

15   coefficient, wherein:

said reproduced signal evaluation means selects a SAM value among a plurality of said SAM values multiplied by said coefficient through said coefficient multiplying means having a minimum SAM

20   value for an ideally-reproduced signal or less, and computes, as said statistical process, an average value of a square of a difference between said minimum SAM value for said ideally-reproduced signal and said selected SAM value; and

said coefficient is controlled in order that a frequency of

25   selection of said SAM value having said minimum SAM value or less for said ideally-reproduced signal equals a frequency of appearance of a minimum SAM value for said ideally-reproduced signal.

18.   The reproducing apparatus according to Claim 15, wherein:

30   said recording medium comprises an optical recording medium or an magneto-optical recording medium from which recorded data is

60

reproduced by an optical means; and

quality of a reproduced signal, that is obtained when data recorded on said recording medium under a recording optical output power and reproduced under a different reproducing optical output power, is evaluated by said reproduced signal evaluation means using said SAM value computed by said SAM value computing means and, based on a result of said evaluation, an optimal reproducing optical output power is determined for reproducing data recorded on said recording medium.

19.   The reproducing apparatus according to Claim 18, wherein a value, obtained by multiplying a predetermined coefficient and a lowest reproducing optical output power among reproducing optical output powers having said SAM value equal or lower than a reference SAM value during said reproduction, is determined as said optimal reproducing optical output power.

20.   A reproducing method for reproducing a signal from a recording medium on which data modulated by a modulation code having a minimum run of one or more is stored, said reproducing method comprising:

a reproducing step for reproducing said signal from said recording medium on which data modulated by said modulation code having said minimum run of one or more is stored;

a binary data detecting step for detecting said binary data after decoding said reproduced signal reproduced from said recording medium by said reproducing step applying maximum likelihood decoding;

a SAM value computing step for computing a SAM value based on a detection result of said binary data detecting step, wherein SAM means Sequenced Amplitude Margin;

61

a reproduced signal evaluation step for selecting from SAM values computed by said SAM computing step, said SAM values being within a predetermined range of values, and evaluating said reproduced signal by a applying a statistical process to said selected SAM values; and

5 a reproduction controlling step for controlling said reproducing step based on a result of said evaluation by said reproduced signal evaluation step.

10 21. A recording apparatus for recording data on a recording medium upon modulating said data by using a modulation code having a minimum run of one or more, said reproducing apparatus comprising:

a recording means for recording said data on said recording
15 medium after said data is modulated by said modulation code having said minimum run of one or more;

a reproducing means for reproducing a signal from said recording medium after recording said data on said recording medium with said recording means;

20 a binary data detecting means for detecting binary data after decoding a reproduced signal reproduced from said recording medium by said reproducing means applying a maximum likelihood decoding;

a SAM value computing means for computing a SAM value based on a detection result of said binary data detecting means,
25 wherein SAM means Sequenced Amplitude Margin;

a reproduced signal evaluation means for selecting, from SAM values computed by said SAM computing means, a SAM value being within a predetermined range of values, and evaluating said reproduced signal by a applying a statistical process to said selected
30 SAM values; and

a recording controlling means for controlling said reproducing

means based on a result of said evaluation by said reproduced signal evaluation means.

22.   The recording apparatus according to Claim 22, wherein said reproduced signal evaluation means selects a SAM value among a plurality of said SAM values computed by said SAM computing means having a minimum SAM value for an ideally-reproduced signal or less, and computes, as said statistical process, an average value of a square of a difference between said minimum SAM value for said ideally-reproduced signal and said selected SAM value.

23.   The recording apparatus according to Claim 21, further comprising a coefficient multiplying means for multiplying said SAM values inputted to said reproduced signal evaluation means by a coefficient, wherein:

said reproduced signal evaluation means selects a SAM value among a plurality of said SAM values multiplied by said coefficient through said coefficient multiplying means having a minimum SAM value for an ideally-reproduced signal or less, and computes, as said statistical process, an average value of a square of a difference between said minimum SAM value for said ideally-reproduced signal and said selected SAM value; and

said coefficient is controlled in order that a frequency of selection of said SAM values having said minimum SAM value for said ideally-reproduced signal or less equals a frequency of appearance of said minimum SAM value for said ideally-reproduced signal.

24.   The recording apparatus according to Claim 21, wherein:

said recording medium comprises an optical recording medium or an magneto-optical recording medium from which recorded data is reproduced by an optical means; and

63

quality of a reproduced signal, that is obtained when data recorded on said recording medium under a recording optical output power and reproduced under a different reproducing optical output power, is evaluated by said reproduced signal evaluation means using said SAM value computed by said SAM value computing means and, based on a result of said evaluation, an optimal reproducing optical output power is determined for reproducing data recorded on said recording medium.

25.   The recording apparatus according to Claim 24, wherein a value, obtained by multiplying a predetermined coefficient and a lowest reproducing optical output power among reproducing optical output powers having said SAM value equal or lower than a reference SAM value during said reproduction, is determined as said optimal reproducing optical output power.

26.   A recording method for recording data on a recording medium upon modulating said data by using a modulation code having a minimum run of one or more, said reproducing method comprising:

a recording step for recording data on said recording medium after said data is modulated by said modulation code having said minimum run of one or more;

a reproducing step for reproducing a signal from said recording medium after recording said signal on said recording medium with said recording step;

a binary data detecting step for detecting binary data after decoding a reproduced signal reproduced from said recording medium by said reproducing step applying a maximum likelihood decoding;

a SAM value computing step for computing a SAM value based on a detection result of said binary data detecting step, wherein SAM means Sequenced Amplitude Margin;

64

a reproduced signal evaluation step for selecting, from SAM values computed by said SAM computing step, a SAM value being within a predetermined range of values, and evaluating said reproduced signal by a applying a statistical process to said selected SAM values; and

5   a recording controlling step for controlling said reproducing step based on a result of said evaluation by said reproduced signal evaluation step.

10   27.   A reproduced signal evaluation apparatus for evaluating a signal reproduced from a recording medium on which data modulated by a modulation code having a minimum run of one or more is stored, said reproduced signal evaluation apparatus comprising:

         a binary data detecting means for detecting binary data after
15   decoding by applying maximum likelihood decoder, a signal reproduced from a recording medium on which data modulated by said modulation code having said minimum run of one or more is stored;

         a SAM value computing means for computing a SAM value based on said reproduced signal, wherein SAM means Sequenced
20   Amplitude Margin; and

         a reproduced signal evaluation means for performing pattern matching against a pattern of data array obtained from said binary data detected by said binary data detecting means; selecting a SAM value for said pattern having a minimum SAM if a reproduced wave
25   form is ideal; and evaluating said reproduced signal by applying a statistical process to said selected SAM.

28.   The reproduced signal evaluation apparatus according to Claim 27, wherein said reproduced signal evaluation means selects a SAM
30   value among a plurality of said SAM values computed by said SAM computing means obtained by said SAM value computing means based

65

on said reproduced signal corresponding to a data array of said binary data detected by said binary data detecting means matching a predetermined path based on a result of said pattern matching, and computes as said statistical process, an average value of a square of a difference between said selected SAM value and an expected average SAM value.

29.   The reproduced signal evaluation apparatus according to Claim 27, further comprising a coefficient multiplying means for multiplying said SAM values inputted to said reproduced signal evaluation means by a coefficient, wherein:

said reproduced signal evaluation means selects, based on a result of said pattern matching, a SAM value obtained by said SAM value computing means based on said reproduced signal corresponding to a data array of said binary data detected by said binary data detecting means matching a predetermined path, and computes as said statistical process, an average value of a square of a difference between said selected SAM value and an expected average SAM value; and

said coefficient multiplying means is controlled for making an output of said coefficient multiplying means and said expected average SAM value be equal.

30.   A reproduced signal evaluation method for evaluating a signal reproduced from a recording medium on which data modulated by a modulation code having a minimum run of one or more is stored, said reproduced signal evaluation method comprising:

a binary data detecting step for detecting binary data after decoding by applying maximum likelihood decoding, a signal reproduced from a recording medium on which data modulated by said modulation code having said minimum run of one or more is stored;

66

a SAM value computing step for computing a SAM value based on said reproduced signal, wherein SAM means Sequenced Amplitude Margin; and

a reproduced signal evaluation step for performing pattern matching against a pattern of data array obtained from said binary data detected by said binary data detecting step; selecting a SAM value for said pattern having minimum SAM if a reproduced wave form is ideal; and evaluating said reproduced signal by a applying a statistical process to said selected SAM value.

31.　A reproducing apparatus for reproducing a signal from a recording medium on which data modulated by a modulation code having a minimum run of one or more is stored, said reproducing apparatus comprising:

a reproducing means for reproducing a signal from a recording medium on which data modulated by using said modulation code having said minimum run of one or more is stored;

a binary data detecting means for detecting binary data after decoding a reproduced signal reproduced from said recording medium by said reproducing means applying a maximum likelihood decoding;

a SAM value computing means for computing a SAM value based on said reproduced signal, wherein SAM means Sequenced Amplitude Margin;

a reproduced signal evaluation means for performing pattern matching against a pattern of data array obtained from said binary data detected by said binary data detecting means; selecting a SAM value for said pattern having minimum SAM if a reproduced wave form is ideal; and evaluating said reproduced signal by applying a statistical process to said selected SAM value; and

a recording controlling means for controlling said reproducing means based on a result of said evaluation by said reproduced signal

67

evaluation means.

32.   The reproduction apparatus according to Claim 31, wherein said reproduced signal evaluation means selects, among a plurality of said SAM values computed by said SAM computing means, a SAM value obtained by said SAM value computing means based on said reproduced signal corresponding to a data array of said binary data detected by said binary data detecting means matching a predetermined path, based on a result of said pattern matching, and computes as said statistical process, an average value of a square of a difference between said selected SAM value and an expected average SAM value.

33.   The reproduction apparatus according to Claim 31, further comprising a coefficient multiplying means for multiplying said SAM values inputted to said reproduced signal evaluation means by a coefficient, wherein:

        said reproduced signal evaluation means selects, based on a result of said pattern matching, a SAM value obtained by said SAM value computing means based on said reproduced signal corresponding to a data array of said binary data detected by said binary data detecting means matching a predetermined path, and computes as said statistical process, an average value of a square of a difference between said selected SAM value and an expected average SAM value; and

        said coefficient multiplying means is controlled for making an output of said coefficient multiplying means and said expected average SAM value be equal.

34.   The reproduction apparatus according to Claim 31, wherein:
        said recording medium comprises an optical recording medium or

68

an magneto-optical recording medium from which recorded data is reproduced by an optical means; and

quality of a reproduced signal, that is obtained when data recorded on said recording medium under a recording optical output power and reproduced under a different reproducing optical output power, is evaluated by said reproduced signal evaluation means using said SAM value computed by said SAM value computing means and, based on a result of said evaluation, an optimal reproducing optical output power is determined for reproducing data recorded on said recording medium.

35. The reproduction apparatus according to Claim 34, wherein a value, obtained by multiplying a predetermined coefficient and a lowest reproducing optical output power among reproducing optical output powers having said SAM value equal or lower than a reference SAM value during said reproduction, is determined as said optimal reproducing optical output power.

36. A reproducing method for reproducing a signal from a recording medium on which data modulated by a modulation code having a minimum run of one or more is stored, said reproducing method comprising:

a reproducing step for reproducing a signal from a recording medium on which data modulated by said modulation code having said minimum run of one or more is stored;

a binary data detecting step for detecting binary data after decoding said reproduced signal reproduced from said recording medium by said reproducing step applying maximum likelihood decoding;

a SAM value computing step for computing a SAM value based on said reproduced signal, wherein SAM means Sequenced Amplitude

Margin;

a reproduced signal evaluation step for performing pattern matching against a pattern of data array obtained from said binary data detected by said binary data detecting step; selecting a SAM value for said pattern having minimum SAM if a reproduced wave form is ideal; and evaluating said reproduced signal by a applying a statistical process to said selected SAM value; and

a recording controlling step for controlling said reproducing step based on a result of said evaluation by said reproduced signal evaluation step.

37.   A recording apparatus for recording data on a recording medium upon modulating said data by using a modulation code having a minimum run of one or more, said reproducing apparatus comprising:

a recording means for recording data on said recording medium after said data is modulated by said modulation code having said minimum run of one or more;

a reproducing means for reproducing a signal from said recording medium after recording said signal on said recording medium with said recording means,;

a binary data detecting means for detecting binary data after decoding a reproduced signal reproduced from said recording medium by said reproducing means applying a maximum likelihood decoding;

a SAM value computing means for computing a SAM value based on said reproduced signal, wherein SAM means Sequenced Amplitude Margin;

a reproduced signal evaluation means for performing pattern matching against a pattern of data array obtained from said binary data detected by said binary data detecting means; selecting a SAM value for said pattern having minimum SAM if a reproduced wave form is ideal; and evaluating said reproduced signal by a applying a

statistical process to said selected SAM value; and

a recording controlling means for controlling said reproducing means based on a result of said evaluation by said reproduced signal evaluation means.

5

38.   The recording apparatus according to Claim 37, wherein said reproduced signal evaluation means selects, among a plurality of said SAM values computed by said SAM computing means, a SAM value obtained by said SAM value computing means based on said reproduced signal corresponding to a data array of said binary data detected by said binary data detecting means matching a predetermined path, based on a result of said pattern matching, and computes as said statistical process, an average value of a square of a difference between said selected SAM value and an expected average SAM value.

39.   The recoding apparatus according to Claim 37, further comprising a coefficient multiplying means for multiplying said SAM values inputted to said reproduced signal evaluation means by a coefficient, wherein:

said reproduced signal evaluation means selects, based on a result of said pattern matching, a SAM value obtained by said SAM value computing means based on said reproduced signal corresponding to a data array of said binary data detected by said binary data detecting means matching a predetermined path, and computes as said statistical process, an average value of a square of a difference between said selected SAM value and an expected average SAM value; and

said coefficient multiplying means is controlled for making an output of said coefficient multiplying means and said expected average SAM value be equal.

71

40.   The recording apparatus according to Claim 37, wherein:

said recording medium comprises an optical recording medium or an magneto-optical recording medium from which recorded data is reproduced by an optical means; and

quality of a reproduced signal, that is obtained when data recorded on said recording medium under a recording optical output power and reproduced under a different reproducing optical output power, is evaluated by said reproduced signal evaluation means using said SAM value computed by said SAM value computing means and, based on a result of said evaluation, an optimal reproducing optical output power is determined for reproducing data recorded on said recording medium.

41.   The recording apparatus according to Claim 40, wherein a value, obtained by multiplying a predetermined coefficient and a lowest reproducing optical output power among reproducing optical output powers having said SAM value equal or lower than a reference SAM value during said reproduction, is determined as said optimal reproducing optical output power.

42.   A recording method for recording data on a recording medium upon modulating said data by using a modulation code having a minimum run of one or more, said reproducing method comprising:

a recording step for recording data on said recording medium after said data is modulated by said modulation code having said minimum run of one or more;

a reproducing step for reproducing a signal from said recording medium after recording said signal on said recording medium with said recording step;

a binary data detecting step for detecting binary data after

72

decoding a reproduced signal reproduced from said recording medium by said reproducing step applying a maximum likelihood decoding;

a SAM value computing step for computing a SAM value based on said reproduced signal, wherein SAM means Sequenced Amplitude Margin;

a reproduced signal evaluation step for performing pattern matching against a pattern of data array obtained from said binary data detected by said binary data detecting step; selecting a SAM value for said pattern having minimum SAM if a reproduced wave form is ideal; and evaluating said reproduced signal by a applying a statistical process to said selected SAM value; and

a recording controlling step for controlling said reproducing means based on a result of said evaluation by said reproduced signal evaluation step.

43.   A reproduced signal evaluation apparatus for evaluating a signal reproduced from a recording medium, comprising:

a binary data detector decoding said signal reproduced from said recording medium using maximum likelihood decoding;

a SAM value computation unit computing a SAM value based on the detection result; and

a reproduced signal evaluation unit evaluating said reproduced signal based on the computed SAM value.

44.   A reproduced signal evaluation method for evaluating a signal reproduced from a recording medium, said method comprising:

detecting binary data by decoding said signal reproduced from said recording medium using maximum likelihood decoding;

computing a SAM value based on the detection result; and

evaluating said reproduced signal based on the computed SAM value.

73

45. A reproducing apparatus for reproducing a signal recorded on a recording medium and converting said signal into binary data, said reproducing apparatus comprising:

a reproducing unit reproducing a signal recorded on said recording medium;

a binary data detector detecting binary data by decoding said signal reproduced from said reproducing means using maximum likelihood decoding;

a SAM value computation unit computing a SAM value based on the detection result;

a reproduced signal evaluation unit evaluating said reproduced signal based on the computed SAM value; and

a reproduction controller controlling said reproducing unit based on the evaluation result.

46. A reproduction method for reproducing a signal recorded on a recording medium and converting said reproduced signal into binary data, said reproduction method comprising:

reproducing said signal recorded on said recording medium;

detecting binary data by decoding the reproduced signal using maximum likelihood decoding;

computing a SAM value based on the detection result;

evaluating said reproduced signal based on the computed SAM value; and

controlling said reproducing based on the evaluation result.

74